



Procathepsin K

Catalog number

P9005-45

Supplier

United States Biological

Human cathepsin K is a member of the cysteine protease family. It has been shown that cathepsin K plays a major role in the resorption of the bone matrix by osteoclasts. Cathepsin K has potential as a drug target for the diseases related to bone matrix metabolism. Autoproteolytic processing of the N-terminal 99 aa propeptide produces the active, mature form of cathepsin K. It is presumed that the activation of procathepsin K in vivo occurs in the bone resorption pit, which has a low-pH environment. Humans lacking cathepsin K exhibit pycnodysostosis, which is characterized by short stature and osteosclerosis. Factors that directly modulate osteoclastic bone resorption, including cytokines (RANK ligand, tumor necrosis factor-alpha and interferon gamma), hormones (retinoic acid and estrogen) and nuclear transcriptional factors (c-jun and Mitf) also regulate cathepsin K gene expression. Cathepsin K is an attractive target for therapeutic intervention to prevent and ameliorate the significant deleterious impact of osteoporosis. In the cartilage, cathepsin K has a potent aggrecan-degrading activity and cathepsin K generated aggrecan cleavage products specifically potentiate the collagenolytic activity of cathepsin K toward type I and II collagens. The osteoclast is not the only cell type expressing cathepsin K: It was found in epitheloid cells and multinucleated giant cells irrespective of the pathological condition and anatomical location, but not in normal resident macrophages.

Applications

Suitable for use in Immunohistochemistry and Western Blot. Other applications have not been tested.

Recommended Dilutions

Optimal dilutions to be determined by the researcher.

Storage and Stability

Lyophilized powder may be stored at -20°C. Stable for 12 months at -20°C. Reconstitute with sterile ddH₂O. Aliquot to avoid repeated freezing and thawing. Store at -20°C. Reconstituted product is stable for 12 months at -20°C. For maximum recovery of product, centrifuge the original vial after thawing and prior to removing the cap. Further dilutions can be made in assay buffer.

Immunogen

Recombinant protein corresponding to 314aa with a 12aa His-tag from human Procathepsin K expressed in E. coli.

Formulation

Supplied as a lyophilized powder from PBS, pH 7.2. Reconstitute with 100ul sterile ddH₂O. Slight turbidity may occur after reconstitution, which does not affect activity of the antibody. Clarify the solution by centrifugation.

Purity

Purified by Protein G affinity chromatography

**Specificity**

Recognizes human Procathepsin K at ~36kD

Product Type

Mab

Source

human

Isotype

IgG2b

Grade

Affinity Purified

Applications

IHC WB

Crossreactivity

Hu

Storage

-20°C

Reference

1. Tepel C. ; Bromme D.; Herzog V.; Brix K. : Cathepsin K in thyroid epithelial cells: sequence, localization and possible function in extracellular proteolysis in thyroglobulin. J. Cell Science 113, 4487-4498 (2000) 2. Dodds R. A. : A cytochemical assay for osteoclast cathepsin K activity. Cell Biochem. Funct. 21, 231-234 (2003) 3. Chiellini Ch.; Costa M.; Novelli S. E. et al: Identification of Cathepsin K as a Novel Marker of Adiposity in White Adipose Tissue: J. Cellular Physiology 195, 309-321 (2003)